

MATH-UA.0328.001: Honors Analysis, Fall 2018

Syllabus

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| Instructor | Federico Buonerba | Lecture | MW 11:00am -12:15 pm |
| Email | fb831@nyu.edu | Classroom | WWH 317 |
| Office | WWH 1104 | Course Page | via NYU Classess |
| Office hours | MW 12:30 - 13:30 pm | Questions | ask via Piazza |

Welcome to Honors Analysis!

Goals of the course

The ultimate goal of this course is to gain a mathematically rigorous understanding of basic concepts on which real analysis builds on. Topics include:

- Sets and the structure of real numbers
- Sequences and infinite series
- Limits and continuity on the real line
- Properties of metric spaces
- Differential and integral calculus on the real line

Textbook

Textbook: Johnsonbaugh and Pfaffenberger, *Foundations of mathematical analysis*.

We will follow the book rather closely, covering most of the material in between chapter I and chapter IX.

The book is available on amazon (check also NYU bookstore and online). The most famous reference for real analysis is a book by Rudin, principles of mathematical analysis. It is great in many respects, but it is my opinion that it may be too quick for a first course. On the other hand, some of its exercises are wonderful. If you happen to have some free time to devote to a deeper insight in analysis, checking Rudin's problems may be an excellent way of investing your time. If interested, you should talk to me about that.

Assessments

Written Homework (20%)

- Homeworks are **due at the beginning of class on Mondays**. **No late homework** will be accepted. **No emailed homework** will be accepted. The lowest homework score will be dropped.
- You are encouraged to form study groups and to exchange ideas with classmates when wrestling with homework problems. However, you must write up your homework individually. A good rule of thumb: make sure that you can reproduce or explain your homework solution individually without looking at what you have written up.

Quizzes and Participation (20%)

- Quizzes will take place every other week at the beginning of class, on **Mondays**. The lowest quiz score will be dropped.
- Students are expected to attend class, work in class, share their results and respectfully critique each other's work, and to read relevant sections before coming to class.

The participation grade will be assigned based on regular attendance and response to in-class questions.

Exams (60%)

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| Midterm 1 (25%) | October 22 (in class) |
| Final Exam (35%) | TBA (location TBA) |

Academic Integrity

We value hard work and integrity and do not tolerate academic dishonesty. You are expected to uphold academic integrity as specified by the university and the College of Arts and Sciences. Remember that we are here to learn.

Course Policies

There will be no accommodation for missed homework, quizzes, and exams, except in the cases of illness, observance of religious holidays, and extenuating circumstances. In the case of observance of religious holidays, you must make arrangements to make up missed work **at least one week in advance**. In the case of illness, you must present a detailed letter from a physician/health care provider and make up missed work in a timely manner. Students requiring special accommodations must make individual arrangements with Moses Center.

Advice for Making The Most of This Course

- **Get your hands dirty in class!** Actively participate when we solve problems in class. Passively listening to lectures and taking notes are generally not sufficient for learning deeply.
- **Spend time** on written assignments. Expect each written assignment to take 4-8 hours. This is your opportunity to wrestle with and to internalize new ideas introduced in class. When working on assignments, strive to really understand the deeper ideas behind the methods.
- **Prepare for quizzes**, for example, by practicing on textbook problems at the end of the sections.
- **Get help early:**
 - **Attend instructor's office hours.** Office hours schedule, course information, homework assignments, and grades will be posted in the **NYU Classes** page for our section.
 - **Form study groups**, but it's critical that you write up your own homework individually.
 - **Piazza:** Use the course Piazza page to post questions and to respond to classmates' questions. When you do, make sure to be courteous and respectful. For homework-related questions, full solutions to homework problems should not be requested or provided.
 - **University Learning Center:** Free peer-tutoring/study help sessions offered by the university. See: <http://www.nyu.edu/ulc>
 - **Mathematics Tutoring Center:** Free peer-tutoring sessions is sometimes offered by the math department to students. It is located on the 5th floor of Warren Weaver Hall, Rooms 505 and 524. For more information: http://math.nyu.edu/degree/undergrad/tutor_schedule.html.